

1            **ABSTRACT OF THE DISCLOSURE**

2            The invention encompasses a semiconductor processing method of  
3            cleaning a surface of a copper-containing material by exposing the  
4            surface to an acidic mixture comprising Cl<sup>-</sup>, NO<sub>3</sub><sup>-</sup> and F<sup>-</sup>. The invention  
5            also includes a semiconductor processing method of forming an opening  
6            to a copper-containing substrate. Initially, a mass is formed over the  
7            copper-containing substrate. The mass comprises at least one of a  
8            silicon nitride and a silicon oxide. An opening is etched through the  
9            mass and to the copper-containing substrate. A surface of the copper-  
10          containing substrate defines a base of the opening, and is referred to as  
11          a base surface. The base surface of the copper-containing substrate is  
12          at least partially covered by at least one of a copper oxide, a silicon  
13          oxide or a copper fluoride. The base surface is cleaned with a cleaning  
14          solution comprising hydrochloric acid, nitric acid and hydrofluoric acid  
15          to remove at least some of the at least one of a copper oxide, a silicon  
16          oxide or a copper fluoride from over the base surface.

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